A4

13. (Amended) The method of producing glass particles deposit as claimed in claim 11, wherein a moving distance in one direction of the reciprocal movement is set to twice the burner interval or shorter.

REMARKS

This Amendment is being filed in response to the Office Action dated December 17, 2002. For the following reasons, this Application should be allowed, and the case passed to issue.

No new matter is introduced by this amendment. The amendment to claims 1 and 10 are supported throughout the specification and in Figure 1. The amendment to claims 4 and 13, merely correct informalities and do not limit the scope of the claims.

Initially it is noted, that although the Examiner included initialed copies of the PTO-1449 forms and a PTO-892 form, the Office Action Summary, PTO-326, does not indicate that these forms were attached to the Office Action.

Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-18 are rejected under 35 U.S.C. § 102(b) as anticipated or, in the alternative, as obvious under 35 U.S.C. 103(a) as obvious over Shimada et al. (U.S. Patent No. 5,958,102) taken alone or in view of Powers (U.S. Patent No. 4,726,827). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a method of producing glass particles deposit, the method comprising relatively reciprocally moving a starting rod and glass particle synthesizing burners in parallel to an axial direction of said starting rod, wherein the

starting rod and the glass particle synthesizing burners are reciprocally moved between at least two turn-back positions. Relative movement is stopped and restarted at at least one point between two immediately adjacent turn-back positions, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping.

Another aspect of the invention, per claim 10, is a method of producing glass particles deposit, the method comprising relatively reciprocally moving a starting rod and glass particle synthesizing burners in parallel to an axial direction of the starting rod. The relative movement is stopped and restarted, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping.

The Examiner asserts that Shimada discloses the process of producing a glass particle preform including a plurality of burners opposite a rotating starting rod, and relatively reciprocally moving the starting rod and the burners in a parallel axis. The Examiner considers each of the points L1 and L6 to be turn-back positions and each of the points L2, L3, L4, and L5 to be stopping and restarting points. The Examiner concludes that the claims do not require that the burners are stopped and then restarted in the same direction. The Examiner further concludes that the parameters and features of the dependent claims would be within the purview of one of ordinary skill in the art. The Examiner cites Powers as teaching that providing relative movement or a stopping position is well known in the art. The Examiner concludes that it would been obvious to provide a stopping point in order to alter the level of deposition, as taught by Powers.

Applicants submit that the claimed method is neither anticipated by nor obvious in view of the cited prior art. Shimada does <u>not</u> disclose a method of producing glass particles

deposit by relatively reciprocally moving a starting rod and glass particle synthesizing burners in parallel to an axial direction of the starting rod, wherein the starting rod and the glass particle synthesizing burners are reciprocally moved between at least two turn-back positions, and relative movement is stopped and restarted at at least one point between two immediately adjacent turn-back positions, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping, as required by claim 1. Shimada also does not disclose a method of producing glass particles deposit by relatively reciprocally moving a starting rod and glass particle synthesizing burners in parallel to an axial direction of the starting rod, and the relative movement is stopped and restarted, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping, as required by claim 10.

The factual determination of lack of novelty under 35 USC § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Shimada does not disclose the stopping and restarting of the relative movement, as required by claims 1 and 10, Shimada does not anticipate claims 1 and 10.

Applicants further submit that Shimada does not suggest the stopping and restarting of the relative movement, as required by claims 1 and 10. Powers does not cure the

deficiencies of Shimada. The combination of Powers and Shimada does not suggest the instant claims.

The Examiner asserts that Powers discloses the effect on the level of deposition for reciprocating and stationary burners. However, it would not have been obvious to combine Powers with Shimada because Powers expressly teaches away from stopping the reciprocating burners. Powers discloses (column 6, lines 23-27) that to direct the soot stream to the same region of the surface upon which soot had been deposited is not efficient. Thus, to improve deposition efficiency the burner undergoes reciprocating movement along the region where soot is deposited. On the other hand, the present invention involves a method for depositing the glass particles on a rod where the burner is stopped while undergoing reciprocating movement. Therefore, the Examiner's assertion that the Powers' teaching would motivate one of ordinary skill in this art to stop the burners, as required by the instant claims, is not supported by Powers.

The present invention improves the synthesizing efficiency of glass particles. The present invention provides decreased taper portions at the ends of the soot body, thus yielding a greater usable portion of the soot body. Clearly, the combination of Shimada and Powers does not suggest either the claimed invention or the improvements provided by the claimed invention.

A prior art reference must be considered in its entirety, i.e., as a **whole**, including portions that would lead away from the claimed invention. Such a teaching away from a claimed invention constitutes potent evidence of non-obviousness. See, for example, *In re Bell*, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d

1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Powers expressly teaches away from stopping the reciprocating burners. One of ordinary skill in the art would not be motivated by Powers to stop and restart the relative movement of the burners in the same direction as the relative movement immediately before stopping in the method of Shimada.

The instant claims are not suggested by Shimada or Powers. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in either Shimada or Powers to stop and restart the relative movement of the burners in the same direction as the relative movement immediately before stopping. The mere fact that references can be modified does not render the resulting combination obvious unless the prior art also suggests the desirability the modification. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Neither Shimada nor Powers suggest the desirability of stopping and restarting the relative movement of the burners in the same direction as the relative movement immediately before stopping, as required by claims 1 and 10.

The dependent claims are allowable at least for the same reasons as the independent claims, and further distinguish the claimed invention. For example, claims 5 and 14 further require that the moving distance in the one direction of the reciprocal

movement is set substantially equal to or substantially twice the burner interval. Claims 6 and 15 further require that the distance between adjacent stop points including turn-back points of the relative movement is within the range of 5 to 40 mm. Claims 7, 8, 16, and 17 further require that the step of depositing glass particles is terminated at a point of time when the burners arrive at the turn-back position of the reciprocal movement. Claims 9 and 18 further require that a stop time at stop point of the relative movement is set different from a stop time at the turn-back position of the reciprocal movement. The cited prior art does not suggest the claimed method with these additional limitations. Although the Examiner concludes that it would be well within the purview of one of ordinary skill in this art to determine parameters and features of the claims, the Examiner provides no support for this conclusion and further does not provide the required motivation for modifying the method of Shimada.

In light of the amendment and remarks above, this application is in condition for allowance and the case should be passed to issue. If there are any question regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE IN THE CLAIMS

Claims 1, 4, 10, and 13 have been amended as follows:

1. (Amended) A method of producing glass particles deposit, said method comprising:

disposing a plurality of glass particle synthesizing burners opposite to a rotating starting rod;

relatively reciprocally moving said starting rod and said glass particle synthesizing burners in parallel to an axial direction of said starting rod, wherein said starting rod and said glass particle synthesizing burners are reciprocally moved between at least two turn-back positions;

depositing glass particles synthesized by said burners on a surface of said starting rod,

wherein the relative movement is stopped and restarted at at least one point between two immediately adjacent turn-back positions, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping [while it is made from one turn-back position up to the other turn-back position of the reciprocal movement].

4. (Amended) The method of producing glass particles deposit as claimed in claim 2, wherein a moving distance in one direction of the reciprocal movement is set to twice [of] the burner interval or shorter.

10. (Amended) A method of producing glass particles deposit, said method comprising:

disposing a plurality of glass particle synthesizing burners opposite to a rotating starting rod;

relatively reciprocally moving said starting rod and said glass particle synthesizing burners in parallel to an axial direction of said starting rod;

depositing glass particles synthesized by said burners on a surface of said starting rod,

wherein the relative movement is stopped and restarted, such that the relative movement continues in the same direction upon restarting as the relative movement immediately before stopping [during one reciprocal movement].

13. (Amended) The method of producing glass particles deposit as claimed in claim 11, wherein a moving distance in one direction of the reciprocal movement is set to twice [of] the burner interval or shorter.